Annual Narrative Report for Calendar Year 2001

Modoc National Wildlife Refuge
Alturas, California

U.S. Department of the Interior
Fish and Wildlife Service
Central Valley / San Francisco Bay Ecoregion

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Review and Approval

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Reviewed and Approved by:

Refuge Manager / Project Leader Modoc NWR	Date
Refuge Supervisor CA/NV Operations Officer	Date
Regional Office Approval	Date

Introduction

Fed by snowmelt from the Warner Mountains, the Pit River creates an oasis for wildlife in the high desert of northeastern California—Modoc National Wildlife Refuge. The Refuge was established in 1961 to manage and protect migratory waterfowl. Funds available under the Migratory Bird Duck Stamp Program helped purchase this Refuge. The 7,021 acre Refuge is located along the south fork of the Pit River in Modoc County, just south of the town of Alturas in extreme Northeastern California. The Refuge is bordered on the east side by the Warner Mountains and on the west side by the Adin Mountains. The Warner Mountain range rises to an impressive average elevation of 8,000 feet and contains extensive stands of ponderosa pine and white fir trees. This mountain range is also the principal watershed for the entire Pit River Valley west of it, which includes the Refuge. The landscape surrounding the Refuge includes rolling hills, canyons, and plateaus with a sagebrush and juniper vegetative community.

Several habitat types are represented on Modoc NWR including freshwater lakes and ponds, irrigated meadows, farm land, natural flood plains, marsh communities, riparian corridors, and sagebrush and juniper uplands. Soil types are mostly heavy clays having a high alkalinity. Black alkali surrounded by salt concentrations are not uncommon on the poorly drained areas of the Refuge.

Modoc NWR is one in a chain of National Wildlife Refuges along the Pacific Flyway extending from Alaska to Mexico. The Refuge is part of a larger complex of mid-altitude wetlands and lakes of Northeastern California and strategically situated as an important resting and feeding area for migratory birds. Permanent ponds, seasonal marshes, and wet meadows beckon thousands of waterfowl, shorebirds, raptors and songbirds to the Refuge as they make their journeys between nesting and wintering grounds along the Pacific Flyway. Modoc County acts as a migrational hub and staging area for ducks, geese and other wetland birds on the southward migration funnel into this region, which is 60 miles east of the Klamath Basin marshes. After feeding and resting on the Refuge, they continue to the Central and Imperial Valleys of California and other wintering areas. This pattern is reversed in the spring. The Refuge's wetlands and adjacent uplands are also an important nesting area for more than 76 species of ducks, geese, greater sandhill cranes and several other species of marsh birds. In total, more than 250 species of birds have been documented on the Refuge. In addition to bird species, the diverse habitats on the Refuge support a wide range of mammals, reptiles, amphibians, insects and plant life.

Modoc is one of over 500 refuges in the National Wildlife Refuge System — a network of lands set aside specifically to conserve fish, wildlife and plants. Managed by the U.S. Fish & Wildlife Service, the System is a living heritage, conserving wildlife and habitat for people today and for generations to come.

Highlights

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Climatic Conditions

description

Table X: Summary of Climatic Conditions in Calendar Year 2001 at Alturas Ranger Station.				
Month	**Average Minimum Temperature in F°**	**Average Maximum Temperature in F°**	**Average Temperature in F°**	**Total Precipitation (inches)**
January	16.24	44.65	30.24	0.28
February	18.86	44.18	31.52	0.54
March	25.10	57.87	41.48	0.70
April	25.48	57.90	41.48	1.42
May	33.74	79.48	56.61	0.00
June	38.10	81.90	60.00	0.21
July	43.23	88.94	66.08	0.31
August	40.68	91.84	66.26	0.03
September	36.79	81.18	58.98	0.13
October	31.65	69.10	50.37	0.22
November	19.57	61.43	40.50	0.00
December				
Total	n/a	n/a	n/a	3.84

Land Acquisition

FEE TITLE

description

NEW EASEMENTS

description

Work continued on existing easements on lands under the Partners for Wildlife Program. See the description under the *Partners for Wildlife Program / Existing Easements* section in the *Habitat Management* portion of this report.

Planning

MANAGEMENT PLANNING

description

PUBLIC PARTICIPATION

Refuge staff continued to attend meetings of the Modoc County Board of Supervisors, the Modoc County Fish, Game and Recreation Commission, and the Modoc County Land Use Committee when various issues associated with the Refuge were to be discussed, including:

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COMPLIANCE WITH ENVIRONMENTAL AND CULTURE RESOURCE MANDATES

The following was undertaken at Modoc NWR in the year 2001 to meet with various environmental or cultural resource mandates:

Administration

PERSONNEL

Insert photo of staff

Personnel at Modoc NWR during the calendar year 2001 included (from left to right in photo):

Greg L. Albertson - Engineering Equipment Operator, WG-9, Perm. full-time, EOD-XXX
Carl Cox - Gardener, WG-4, Seasonal Temp., EOD-XXX
Anne Marie LaRosa - Refuge Manager/Project Leader, GS-12, Perm. full-time, EOD-XXX
Patty L. Walcott - Wildlife Biologist, GS-9, Perm. full-time, EOD-XXX
Bradley A. Storm - Engineering Equipment Operator, WG-9, Perm. full-time, EOD-9/88
Amy M. LaVoie - Administrative Assistant, GS-6, Perm. full-time, EOD-4/97

Table X: Staffing Levels at Modoc NWR from 1996 to 2001

	PERMANENT		
Year	**Full-Time**	**Part-Time**	**TEMPORARY**
1997	5		
1998	5		
1999	5*		
2000	5*		
2001	5	0	3

*only through a portion of the year

VOLUNTEER PROGRAMS

describe volunteer program

Crews from the California Department of Forestry Devil's Garden Conservation Camp ("Con Crew") provided invaluable "volunteer" labor for various Refuge projects. The Con Crew consists of inmates that are not directly paid; therefore, their work is considered volunteer time. The Refuge pays only a minimal charge for the supervision of the inmates by CDF employees and the use of necessary equipment for the project. Projects the Con Crew completed in the year 2001 included:

- clean-up of litter and debris at Dorris Reservoir, as well as painting of the vault toilets in preparation of public use of the Reservoir in the spring and summer (XXX men spent XXX hours on the project);

- clean-up and painting of the maintenance/equipment storage shop in preparation for the First Annual Modoc Migratory Bird Festival (XXX men provided XXX hours on the project);

- clean-up of the parking lots and painting of the vault toilets at the North and South Hunt Units for the opening of waterfowl hunting season (XXX men provided XXX hours of labor on the project).

FUNDING

Describe funding for the year

The following table outlines funding for the Refuge over the past five years.

Table X: Funding Levels at Modoc NWR from Fiscal Year 1996 to 2000

Subactivity	1997	1998	1999	2000	2001
1121		$10,500	$21,000	$40,217	
1261		$316,900	$395,376	$326,030	
1262 - base	n/a	n/a	n/a	$10,500	
1262 - MMS		$58,000	$197,000	$135,600	
4961		$1,788	$1,788	$1,788	
6351				$5,026	
6860				$10,000	
7201				$1,000	
8555 - TEA 21	n/a	n/a	$115,000	$100,000	
8610				$7,929	
9251				$0	

SAFETY

Safety meetings were held almost every month throughout the year with a variety of topics discussed. There were no vehicle accidents to report for the year. There were X employee accidents or injuries during the year 2001 involving only Refuge employees. No long-term complications from the injuries were sustained by either employee.

REFUGE REVENUE SHARING

A Refuge Revenue Sharing check in the amount of $XX,XXX was issued to Modoc County on XX/00. XXX explain details of check amount if available - see letter from Realty XXX

TECHNICAL ASSISTANCE

XXX describe assistance given to NRCS and landowner for crane management techniques at ranch outside Bieber XXX

OTHER PROGRAMS

Federal Highway Administrative TEA-21 Road Program

XXX briefly describe background of program XXX

In fiscal year 2000, the Refuge received $100,000 in TEA-21 funds to complete improvements to the Auto Tour Route, the Refuge's main public use area. Placement of base road gravel, rip rap along levees/dikes and minor fill on the road was completed in the year 2000. Bids and final costs for the project were well below the initial estimation of $100,000. The remaining funds were used to purchase the following or make the following improvements to be installed or operational by the Spring of 2001: an accessible, public vault toilet to be placed at the beginning of the Auto Tour Route near the information kiosk; an electronic entrance gate to regulate after hours visitor access to the headquarters and public use area of the Refuge; and an accessible, asphalt parking lot and other improvements to the existing parking area at the Wigeon Pond Overlook.

National Wildlife Refuge Centennial Legacy Plan

The National Wildlife Refuge System Centennial Act, was combined with other wildlife management measures as H.R. 3671 and signed by President Clinton on November 1, 2000. The new centennial law set up a Centennial Commission to oversee national promotions and plan a national conference on the refuge system in 2003. The law also designated 2003 the "Year of the National Wildlife Refuge," and called for a long term plan to address the refuge system's priority operations, maintenance, and construction needs nationwide (the Centennial Legacy Plan)..

The Refuge submitted the following projects for funding under the Centennial Legacy Plan:

- Increased base funding to hire essential staff for the positions of Deputy/Assistant Refuge Manager and a Career Seasonal Maintenance Worker to ensure that essential habitat management, biological

monitoring and law enforcement activities are carried out.

- Construction of a fully-accessible visitor's facility to welcome and orient visitors to increase the enjoyment and understanding of the Refuge's wealth of wildlife;

- Upgrade of the Refuge's wildlife interpretive trail to provide an ideal outdoor laboratory for the study of migratory birds and other wildlife for over 1,000 children from Alturas schools, as well as to provide hours of enjoyable wildlife watching and photo opportunities for children and adults alike.

- Funding for repair of over 7 miles of the Refuge's service roads and 3 ½ miles of public roads, as well as over 5 ½ miles of dikes and 2 ½ miles of delivery canals in order to meet the backlog of these and other repair and maintenance projects on the Refuge.

Habitat Management

GENERAL

Although some refuges are undisturbed wilderness areas, most are actively managed to provide food, water, and shelter for wildlife. Each year, managers of National Wildlife Refuges restore and enhance lands and waters to increase their value to wildlife, using various techniques. At Modoc NWR, several habitat management techniques were utilized in the year 2001 and are described throughout the text that follows.

WETLANDS

Wetlands are among the most productive habitats in the world for fish, wildlife and humans. To birds, not all wetlands are created equal. Some prefer deep water for fishing; others prefer warmer, shallow water with its wealth of aquatic plants and insects; some simple need a mere inch or two of water to probe for invertebrates in recently exposed mud.

In the arid West, water has always been a valuable commodity to all forms of life. Water and wetland habitat are the keys to attracting migratory birds and other wildlife in this high desert area. But as human use of water has grown, the amount remaining for wildlife continues to diminish. At one time, the State of California had over 4 million acres of wetland habitat. Today, less than five percent remains. The practice of draining wetlands and diverting streams to other uses, which began in the late 19th century, has made these precious resources far less common in the arid West. Modoc NWR contained limited wetland habitats when originally acquired. The marshy character of the area had been altered by agricultural drainage, particularly along the South Fork of the Pit River. Wetlands within the Refuge have been restored over time to provide valuable wildlife habitat.

Water is key to attracting waterfowl in this high desert area. Balancing human consumption with wildlife needs requires careful water conservation and management strategies. The staff uses the Refuge's elaborate water control system to fill or drain permanent ponds and seasonal marshes to meet the needs of many wildlife species simultaneously. Water is conveyed through a system consisting of an 11,100 acre

foot storage area (Dorris Reservoir), 20 miles of major canals, 50 miles of minor ditches, the South Fork of the Pit River and several pond and marsh units. This system provides water for all the wetland areas on the Refuge and is managed to produce the maximum benefits for wildlife and their habitat, with a minimum amount of labor.

Planned annual operations include maintaining non-fluctuating water levels throughout the system while supplying a continuous flow of fresh water. This proved to be difficult this year as near drought conditions plagued the area. By XXX the water control structures at Dorris Reservoir were opened completely, with little or no flow moving through the system. Fortunately, the surface of the Reservoir never dropped to below the bottom of the outlet pipe on Dorris Dam.

Maintenance staff did an excellent job of meticulously monitoring and maintaining the water levels in the wetlands, ponds and wet meadows. Most areas remained stable without significant loss of water, although many were below normal levels for several months. No significant habitat areas in the system were dry. Due to the lack of water in the Reservoir, though, the Matney Fields in the hunt unit were not flooded for the waterfowl hunting season, as is typically done before the end of the irrigation season. Enough water flowed through the South Fork of the Pit River to maintain the wetlands dependent on this water source, as well as allow the majority of the water features in the hunt area to be near full capacity or flooded in time for the opening of hunting season. The winter of 2000 brought several replenishing rain and snow storms and it is hoped that winter and spring rains in the year 2001 will replenish Dorris Reservoir and eliminate the possibility of worse conditions next year.

CROPLANDS

The farming program at Modoc NWR is conducted entirely by force account and is intended to provide a high energy food source, such as barley and wheat grain, for waterfowl and greater sandhill cranes during migration. Also throughout the year, these planted fields help to avoid waterfowl depredation on adjacent, private farm lands. This year a total of approximately 329 acres of Refuge lands were planted with grain. Approximately 136 acres were planted with spring barley in the Grandma field (50 ac.), Unit #1 in the Hamilton Tract (28 ac.), Little Goose Pond field (5 ac.) and Matney fields #1 (8 ac.), #2 (8 ac.), #6 (22 ac.) and #7 (15 ac.). The spring barley in Unit #1 of the Hamilton Tract failed; therefore, it was replanted in the fall with wheat. Approximately 198 acres were planted with winter wheat in the South Grain field (120 ac.), Unit #1 in the Hamilton Tract (28 ac.), and Matney fields #3 (23 ac.) and #8 (27 ac.). All grain was planted at a rate of approximately 60 to 65 pounds per acre. Despite near drought conditions, grain production was not severely limited and the farmed fields were used by waterfowl, cranes and other wildlife.

Again, despite the lack of water, annual or cyclical irrigation of a few farmed fields continued on the Refuge, including: sprinkler irrigation of Ebby field #6 to promote growth of existing fescue grasses; flooding of the North Grain field to follow the previous year's planting of winter wheat; and sprinkler irrigation of the Sub-headquarters unit to maintain a quality riparian area.

GRASSLANDS

The Refuge has nearly XXXX acres of grasslands. XXXX acres of which are dominated by bunch grasses with an intermix of sweet clover and cheatgrass on the better drained areas of the Refuge. These areas are managed for waterfowl production and are kept undisturbed with no haying or grazing activities. The remaining XXXX acres are managed as wet meadows that are irrigated, mowed, grazed and/or burned to remove old plants, recycle nutrients and stimulate new plant growth. Irrigation of the Refuge's meadows in the spring and fall is conducted to mimic natural cycles of flooding that once occurred in the Pit River Valley. The main objective of managing these wet meadows is to provide succulent green browse for Canada geese in the spring and fall, as well as nesting and feeding areas for greater sandhill cranes in the spring and summer. To a lesser extent, this habitat also provides nesting areas in the spring and summer for other bird species such as mallards, cinnamon teal and redheads, and provides feeding areas for mule deer, other mammals, raptors and songbirds.

In the calendar year 2000, the maintenance staff was able to maintain enough water in these wet meadows for a successful spring production of green browse and nesting areas, especially for those meadows at the upper end of the irrigation system. Water was slow to reach the wet meadows for fall and winter production, but careful irrigation management produced a sufficient amount of green browse for geese.

OTHER HABITATS

The majority of the uplands are dominated by sagebrush, greasewood, rabbitbrush, and native and non-native grasses on the dry, poorly drained alkaline areas at Modoc NWR. The uplands on the Refuge at Dorris Reservoir are also dominated by juniper trees. Due to past and current uses of the Refuge uplands and other private uplands in Modoc County, high quality sage-shrub steppe habitat in this high desert area is rare. The Refuge maintains a no use policy in regard to these uplands in order to ensure survival of remnant stands of this native vegetation on the Refuge. It is hoped that native grasses such as Great Basin wild rye and other forbs will return to dominate over non-native species. For wildlife, these areas provide excellent habitat and cover for quail, pheasants, western meadowlarks, sage thrashers, American robins, bluebirds, finches, other songbird species, deer, pronghorn, rabbits, snakes, kangaroo rats and ground squirrels.

Small, but important, riparian areas on the Refuge provide excellent nesting and forage areas for mammals, raptors, woodpeckers and neotropical migrants such as warblers, swallows, flycatchers and sparrows. The riparian area associated with Pine Creek that passes through the Refuge, has been in a non-use status since 1983 when cattle grazing in the area was eliminated. Planted and previously existing willow trees, narrow-leaf cottonwood trees and wild rosebushes continue to thrive and provide excellent for wildlife. Additionally, the riparian area at the Sub-headquarters unit remains in non-use status with planted and previously existing trees thriving.

XXX mention riparian area of non-use in Hamilton Tract and any adjustment made this year as well as future plans???

No significant management activities or improvements occurred on the upland or riparian areas of the Refuge in the calendar year 2001.

HAYING

Meadows are important feeding areas for sandhill cranes, geese, nesting waterfowl, and mule deer. Breeding waterfowl and cranes feed on early plant growth and invertebrates that live in the soil. To encourage growth of this nutritious food, the Refuge implements a haying program at the end of the summer as an effective and economic tool to remove old plants and recycle nutrients. After the meadows are hayed, they are irrigated to stimulate new plant growth. Some, but not all meadows are also grazed in late fall / early winter. Then in the following spring, the sun thaws the frozen soil of the meadows earlier, giving new plants a head start.

Private farmers who possess grandfather rights or who have successfully bid on haying a specific meadow are allowed to harvest hay on the Refuge under a Special Use Permit and conditions. As described earlier, this year the maintenance staff was able to maintain enough water in the wet meadows for a successful spring production of green browse and nesting areas. The following table summarizes the harvest of hay in August of 2000 on the Refuge, as well as the last two years for comparison purposes.

Table X: Summary of Haying Program at Modoc NWR

		Tons of Hay			Total Revenue		
Field	**Permittee**	**1998**	**1999**	**2000**	**1998**	**1999**	**2000**
Bailey	Earl Nisly	175	141	161			
Front	Lawrence Ray	912	911	741			
Hamilton Tract*	Pete Weber	85	94	240			
Heifer (plus a portion of Sandy Slough)	Fernand Larranaga	285	324	221			
House	R.A. Stanford	136	109	100			
Pine Creek	Warren Weber	553	487	463			
Pine Creek S.	Stephen Nelson	356	260	238			
Sharkey	Mitchell Brown	330	344	721			
Town (plus a portion of Sandy Slough)	Robert Schluter	424	338	285			

*Permit tonnage increased to include approximately XXX additional tons of hay harvested in Hamilton Tract Unit #XXX. Permit for previous two years includes harvest in only Hamilton Tracts #XXX and #XXX.

GRAZING

In combination with the haying program, the Refuge implements grazing of cattle on certain wet meadows in the late fall / early winter as another effective and economic tool to remove old plants and recycle nutrients. Private ranchers who possess grandfather rights are allowed to graze a predetermined number of head of cattle (measured in Animal Unit Measurements or AUMs) on the Refuge under a Special Use Permit and conditions.

In order to more closely monitor the number of cattle on the Refuge, this year Refuge staff counted and documented the number of cattle as they were placed on or removed from the Refuge. From 1998 to 2000, the following grazing of cattle, reported in AUMs, occurred at Modoc NWR:

Table X: Summary of Grazing Program at Modoc NWR

Field	Permittee	AUMs -- Dates			Total Revenue		
		1998	1999	2000	1998	1999	2000
Bailey	Bill Wilson	102 Grazed: 10/8 - 1/11	152 Grazed: 10/18-10/26				
Ebby Pasture NW	John Younger	101 Grazed: 5/16 - 8/30	43 Grazed: 9/4 - 9/8	0			
Hamilton Tract	Pete Weber	571 Grazed: 4/22 - 12/1	291 Grazed: 9/13 - 12/29				
Hansen West	Robert Schluter	91 Grazed: 9/19 - 11/27	106 Grazed: 10/12 - 12/1				
Pine Creek	Warren Weber	175 Grazed: 10/3 - 11/25	232 Grazed: 9/30 - 11/17				
Pine Creek S.	John Younger	81 Grazed: 9/19 - 11/12	81 Grazed: 9/19 - 11/10				
Town	Robert Schluter	424 Grazed: 10/10-11/21	386 Grazed: 10/12 - 12/1				

FIRE MANAGEMENT

Given the severity and unusual circumstances of the 2000 fire season, a description of the year's events on a national level are given in this narrative.

The prescribed fire season did not began well in the year 2000. The Cerro Grande prescribed burn by the National Park Service in Bandelier National Monument near Los Alamos, New Mexico burned out of control in May of 2000. At one point, the fire caused 18,000 residents to be evacuated from their homes in Los Alamos, it spread dangerously close to the Los Alamos National Nuclear Laboratory, and it eventually destroyed 235 homes in Los Alamos and burned 47,650 acres of public and private land. Due to this incident, a moratorium beginning on May 12, 2000 was placed on prescribed burns west of the 100th meridian within the Department of the Interior by Secretary Babbitt for 30 days.

But the wildland fire season soon began, quickly became extreme and the moratorium on prescribed burns was extended through the season until October 27, 2000. The following is an excerpt from the article "Wildland Fire Season Overview January through October 2000" written by the National Fire Information Center, October 22, 2000:

"A pool of cold water in the Pacific Ocean has been affecting weather across the United States for the past two years. This weather pattern, called "La Nina," was at its strongest in the late winter/early spring of 2000. The effect was a wet winter in the northwestern United States and dry conditions along the southern tier of the country from California to Florida. For example, southern California reported about half its normal precipitation, and the Southwest experienced its second consecutive dry winter. In addition, several southern states reported severe drought conditions.

As a result of La Nina and its influence on weather patterns, a combination of dry fuels and dry, hot weather led to what some are declaring one of the most severe wildland fire seasons in U.S. history. The absence of the seasonal monsoons in the Southwest, the dry vegetation and record-low fuel moisture, and the persistently hot weather across much of the West, culminated in a wildland fire season that began early, became intense and widespread, and lasted for an unusually long period of time.

Conditions were extreme. What happened next was not surprising. Waves of thunderstorms began steadily rocking the West, and fires started popping in Nevada, Idaho, Colorado, Wyoming and Montana. Weather systems spun off winds that only exacerbated the situation, and by July 15 the national preparedness level was raised to a three in response to the several large wildland fires burning in the West. Because of the extraordinarily dry fuels, hot and dry weather, and gusty winds many areas were experiencing, some of the fires were among the very toughest to fight in the last 50 years.

On the peak day of the activity, August 29th, 2000 the snapshot looked like this: 28,462 people were fighting fire; 667 crews were assigned; 1,249 engines, 226 helicopters and 42 airtankers were in use; 84 large fires were burning (100 acres or more); and 1,642,579 acres were on fire in 16 states.
As of October 21, a total of 84,960 wildland fires have burned 6,966,995 acres across the United States since January 2000. The ten-year average (taken from 1990-1999 totals) for numbers of fires is 106,393 and for acres burned is 3,786,411. Total fire suppression cost to October 12 is an estimated $877,847,296, and a total of 852 structures have been destroyed nationwide."

Despite dry and hot conditions, Northeastern California was spared any major fires, except for a wildland

fire on Forest Service lands in XXX Canyon outside Susanville, CA. The Alturas area and the Refuge experienced two days of heavy smoke cover from that fire. No wildland fires occurred on the Refuge during the year 2000. The Refuge planned prescribed burns on several fields to be conducted this year by the Klamath Basin NWRC fire management crew. Planned prescribed burns on Refuge fields included: the NW and SW Ebby pastures, the North Woods field, the Pit Floodplain and the Boxler easement. Due to the shortened prescribed fire season, only XXX acres of XXX was burned by prescribed fire.

PEST CONTROL

The Refuge continued to work with the Modoc County Department of Agriculture to manage weeds on the Refuge. In this cooperative program, the Refuge pays for half the costs of chemicals, equipment use and labor to control weeds on the Godfrey Tract. In the year 2000, the Refuge paid $532.75 to Modoc County for this service. The County Dept. of Agriculture also release a biocontrol agent at a bull thistle infestation on the Refuge. The species XXX was placed in bags hanging from a tree near a large patch of bull thistle on the Refuge just south of County Road 56, near the Dean Neer pond. Results of the success of this biocontrol agent will not be known until next spring and early summer.

A temporary employee, Carl Cox, was hired again this year from mid-May to early October to mainly combat pest control at Modoc NWR. His main focus was on the continuing battle with Scotch thistle, a Class A noxious weed in the State of California. The greatest increase in Scotch thistle infestation was noticed on the Grandma field and the XXX Amy's notes XXX. Decreased infestations were noted on the XXX Amy's notes XXX. All other infested sites remained the same as the previous year. Herbicides and hand removal were utilized to treat Scotch thistle. A less amount of time was also spent battling Canada thistle and bull thistle, mostly by mechanical methods of control (mowing and hand removal) by Refuge staff and the Devil's Garden Conservation Camp crew.

In total XXX gallons of herbicide was used for weed control on approximately XXX acres within the Refuge in the year 2000, which includes XXX gallons of RoundUp, XXX gallons of Rodeo and XXX gallons of Weedar 64. The Refuge applied for permission to use Tordon, a highly effective herbicide for combating Scotch thistle. Permission was not granted by the Service's Regional Integrated Pest Management Coordinator since the herbicide is not approved by the State of California. It could be used on federal lands if permission was granted by the Service, but the Service chose not to overstep California's regulations. The Refuge's battle against Scotch thistle continues on with this year's efforts only managing to maintain the current status, if not continue to lose ground to this problematic weed.

WATER RIGHTS

Modoc NWR holds water rights on two creeks which drain from portions of the Warner Mountain watershed, east of the Refuge. The Refuge holds 52% of the total water rights within the Pine Creek irrigation district, the major water source for the Refuge. A significant water right is also held on Parker Creek. Diversions in the winter from these two creeks fill Dorris Reservoir, an 11,100 acre foot storage area. Stored water from the Reservoir are utilized in spring and summer to irrigate Refuge meadows and to maintain pond and marsh water levels.

Water rights for the Refuge and surrounding landowners are enforced through a Watermaster, employed by the State of California Department of Water Resources. The Refuge paid $7,000 for this service from July 1, 1999 to June 30, 2000. The Refuge will pay $7,200 for this service from July 1, 2000 to June 30, 2001.

Anne Marie:
describe the change in watermaster...any important discussions/decisions
describe Bill Wilson issues if important
describe PGE discussions
describe any other water rights issues that occurred in 2000

PARTNERS FOR WILDLIFE PROGRAM / EXISTING EASEMENTS

Due to project specific funds received from the Partners for Wildlife program (1121-01HR funds), significant work was completed this year on the Davis Easement which is located XXX in Eagleville, California. XXX Insert brief description of land/easement XXX. Del Terra, Inc. coordinated with the Regional Office Planning Office to complete a formal land survey of the property within the easement. This survey allowed for the legal placement of boundary fencing to protect this riparian area from grazing and other adjacent land uses. Crews from the California Department of Forestry Devil's Garden Conservation Camp provided invaluable "volunteer" labor to construct the fence. Despite a busy fire season for the "Con Crew", the project was completed by early September. Use of the Con Crew allowed for the project to be completed under budget, with remaining funds to be used next year for work on other private land easements. Additionally Carl Cox, the Refuge's seasonal employee, provided detailed oversight of the project throughout the summer, ensuring accurate and quality work on the project. His effort was appreciated by the full-time staff who had busy schedules working on normal refuge operations.

In late spring, the Con Crews also provided minor fence repair on the Boxler easement located XXX. On the XXX easement located near Doyle, California, the Refuge Manager met with XXX to review and discuss XXX.

Wildlife

WILDLIFE DIVERSITY

An abundance of wetland habitat, in combination with riparian areas, wet meadows and uplands on Modoc NWR support a high diversity of wildlife species in this high desert area. In total, more than 250 species of birds have been documented on the Refuge. The Refuge's habitat is also an important nesting area for more than 76 species of ducks, geese, greater sandhill cranes and several other species of marsh birds. In addition to bird species, the diverse habitats on the Refuge support a wide range of mammals, reptiles, amphibians, insects and plant life.

ENDANGERED AND / OR THREATENED SPECIES

The Refuge supports one federally endangered species, the bald eagle. Bald eagles can be found on the Refuge during winter as they follow the migration of waterfowl southward and then return north to their breeding grounds at the end of winter. Bald eagles utilize the Refuge for foraging of waterfowl. The number of bald eagles peaked during January of 2001 when 6 birds were observed. The eagles left at the close of winter in April. They returned for the winter of 2001-2002 with the first bald eagle observed on the Refuge on October 30, 2001.

The Refuge on occasion supports one federally threatened species, the peregrine falcon. In the year 2001, the peregrine falcon was downlisted from endangered to threatened by the Service. One peregrine falcon was observed on the Refuge on August 10, 2001.

There are several species which are on the State of California Endangered, Threatened or Species of Concern List. The Central Valley population of greater sandhill cranes and the willow flycatcher are both listed as threatened by the State. See below for details on these species, their use of the Refuge and the Refuge's management practices in relation to these species in calendar year 2001. Other species on the

WATERFOWL

Before the year 2001 began, the majority of waterfowl had left the Refuge due to several freezes. Larger than usual numbers of waterfowl remained on the Refuge throughout January, February and March of 2000, though, as it was warmer than usual. By spring and summer, the number of nesting waterfowl on the Refuge was at or below average, due to drought conditions. Overall, the number of waterfowl utilizing the Refuge during the 2001 fall migration was low. It was theorized that the drought conditions or other water problems within and surrounding the Klamath and Great Basins affected waterfowl utilization of the Refuge as most waterfowl bypassed the area and headed directly to the Sacramento / Central Valley. The Central Valley saw a significant increase in waterfowl utilization from the onset of the 2001 fall migration.

Ducks

Nesting ducks during the spring and summer of 2001, faired well on the Refuge despite the dry conditions. Mallards with broods were noted as early as May with most fledged by late July. Broods of later nesting species, such as gadwalls, were observed as of June with most fledged by late August. The estimated duck production for specific species on Modoc NWR for the past five years is detailed in Table X.

Table X: Estimated Duck Production at Modoc NWR from 1996 to 2001

		# of Pairs	+ 10 % not Observed	x .25 Habitat not Covered	Nest Success	Average Brood Size	Total Production
1996	Mallard	506	--	742	.551	5.55	2269
	Gadwall	499	--	731	.546	5.85	2335
	Pintail	0	--	0	0	0	0
	Cinnamon Teal	71	--	104	.546	7.14	405
	Wigeon	20	--	29	.546	4.44	70
	Shoveler	60	--	88	.546	5.50	264
	Redhead	30	--	44	.68	4.99	149

	Scaup	43	--	63	.43	6.13	166
1997	Mallard	546	--	827	.191	4.03	636
	Gadwall	371	--	544	.186	4.81	487
	Pintail	0	--	0	0	0	0
	Cinnamon Teal	118	--	173	.186	4.50	145
	Wigeon	0	--	0	0	0	0
	Shoveler	103	--	151	.186	2.57	77
	Redhead	48	--	70	.68	6.00	286
	Scaup	38	--	56	.43	6.00	144
1998	No data was available for this year as the breeding pair count survey was not conducted due to staff turnover.						
1999	Mallard						
	Gadwall						
	Pintail						
	Cinnamon Teal						
	Wigeon						
	Shoveler						
	Redhead						
	Scaup						
2000	Mallard						
	Gadwall						
	Pintail						
	Cinnamon Teal						
	Wigeon						
	Shoveler						
	Redhead						
	Scaup						

During the fall migration of 2000, a large number of ducks migrated south onto the Refuge somewhat early in the season during mid to late September. After the opening of waterfowl hunting season on October 7th, the number of ducks on the Refuge slowly dropped due to harvest by hunters and the continued migration of the ducks. Throughout the remainder of the fall migration, no additional large groups of ducks moved onto the Refuge. As discussed above, it was theorized that waterfowl utilization was low, especially for ducks, due to the drought conditions and water problems in and around the Refuge. Noted sightings this year included a male tufted duck and a male Eurasian wigeon.

Geese

During the end of the winter of 1999-2000, the Canada goose population on the Refuge peaked at XXX. Geese began to migrate north around XXX with approximately XXX resident geese remaining through the spring and summer. Nesting Canada goose populations were average this year for the majority of areas on the Refuge. But due to low water levels in Dorris Reservoir and ongoing predation, successful nesting by Canada geese was low at the Reservoir despite the continued closure to the public during nesting season. Goslings were noted as early as XXX on the Refuge. The following table describes Canada goose production on Modoc NWR from 1996 to 2000.

Table X: Canada Goose Production at Modoc NWR from 1996 to 2001

Year	# of Pairs	Nest Success Rate	Brood Size	Total Production
1996	744	66%	3.80	1,866
1997	570	80%	3.90	1,782
1998	606	54%	4.37	1,430
1999*	no data	no data	no data	no data
2000	364	65%	5.60	1,325
2001	672	64%	5.20	2236

*Note: due to staff turnover, a pair survey was not completed during 1999; therefore, nesting and brood surveys could not be completed as well.

Pacific Flyway geese usually do not migrate from the north to the Refuge until mid-November and into December as winter storms and cold temperatures push them south. But during those beginning months of the winter of 2000-2001, the Canada goose population remained low on the Refuge with few new flocks of geese moving in from the north.

Swans

The ponds and other wetland habitats on Modoc NWR provide a staging area for tundra swans during migration with the highest numbers of swans observed in late winter and early spring. The peak number of tundra swans on the Refuge in 2000 was XXX during XXX.

Coots

Another species which biologically falls under the rail family of birds, but is commonly grouped with waterfowl are American coots. The Refuge supports a large number of coot during the year 2000 with numbers peaked at XXX during XXX.

MARSH AND WATER BIRDS

Approximately XX species of marsh and water birds used Modoc NWR during the year, including great blue herons, black-crowned night herons, great egrets, snowy egrets, greater sandhill cranes, American bitterns, pied-bill grebes, eared grebes, western grebes, Clark's grebes, white-faced ibis, American white pelicans, double-crested cormorants, Virginia rails and sora . Numbers this year peaked during July and August with approximately XXX birds present. Greater sandhill cranes, pied-billed grebes and XXX list all other seen nesting this year XXX were documented as nesting on the Refuge this year, but production data was determined only for the cranes.

Modoc NWR is the most important nesting area in Northeastern California for the Central Valley population of greater sandhill cranes; therefore, the Refuge places special emphasis on habitat management and data collection for this species, which is listed as threatened by the State of California. During this

year, breeding pair counts and nesting pair surveys of cranes were conducted during the spring, in late April to early May. Crane production / nest success surveys were conducted near the end of August to early September. Initial nesting success rates were low this year, but successful re-nesting by cranes boosted the success rate to a very high 80%. High nesting and recruitment success rates this year are attributed to XXX. Haying on the Bailey and South Pine Creek Fields was delayed by a week or two in order to allow for colts, who were products of a re-nesting crane pair, to completely fledge. Refuge staff provided additional efforts of moving or "shooing" colts to adjacent fields during the haying process in order to prevent any crane mortalities. Table X summarizes the data collected for greater sandhill cranes at Modoc NWR from 1996 to 2000.

Table X: Sandhill Crane Production at Modoc NWR from 1996 to 2000

Year	Nesting Pairs	Nests Located	Successful Nests	Percent Successful	Colts Fledged	Percent Recruitment
1996	34	11	6	60%	11	16%
1997	36	21	13	62%	15	17%
1998	44	29	14	48%	15	17%
1999	44	13	7	54%	14	16%
2000	32	10	8	80%	20	31%

Crane banding operations were conducted from April through September. Only two juvenile cranes were captured by foot and banded in 2000. Refuge staff did not use rocket nets to attempt to capture and band adult cranes this year, a technique not used since 1992. The following table shows the number of cranes banded at Modoc NWR from 1996 to 2000.

Table X: Crane Banding Data at Modoc NWR from 1996 to 2000

Year	Number of Cranes Banded
1996	0
1997	7
1998	11
1999	2

2000	2

SHOREBIRDS, GULLS, TERNS AND ALLIED SPECIES

Sandpipers, Wilson's phalaropes, greater yellowlegs, willets, dunlins, long-billed dowitchers, long-billed curlews, black-necked stilts, killdeer, common snipe, American avocets, Forster's terns, Caspian terns, ring-billed gulls and California gulls were all documented at the Refuge this year as they stopped at the Refuge on their long journeys south. The Refuge provides shallow ponds and exposed mudflats which are favorite feeding areas for shorebirds and open water areas for gulls, terns and other species. The following species were documented as nesting on the Refuge, but no production data was formulated: long-billed curlews, killdeer, black-necked stilts and American avocets. Noted sightings during the year included XXX.

RAPTORS, OWLS AND ALLIED SPECIES

A total of XX species of raptors, owls and allied species (such as turkey vultures) were documented on the Refuge this year. Raptors who nested on the Refuge included American kestrels, great-horned owls, barn owls, short-eared owns, northern harriers and red-tailed hawks, although production data was not determined. Noted sightings in 2000 included a ferruginous hawk, XXX and a white-tailed kite.

OTHER MIGRATORY BIRDS

Small, but important, riparian areas on the Refuge provide nesting and forage areas for raptors, woodpeckers and neotropical migrants such as warblers, swallows, flycatchers and sparrows. Upland areas on the Refuge provide forage and nesting sites for California quail, ring-necked pheasants, waxwings, western meadowlarks, sage thrashers, American robins, bluebirds, finches and other songbird species. Of special note, approximately 11 to 16 wild turkeys were noted on the Hamilton Tract of the Refuge during the month of November. The following is a list of migratory bird species observed during 2000:

ring-necked pheasant*	horned lark	American robin*	fox sparrow
California quail*	tree swallow*	sage thrasher*	song sparrow*
mourning dove*	violet-green swallow*	American pipit	white-crowned sparrow
common nighthawk	barn swallow*	Bohemian waxwing	dark-eyed junco
		Cedar waxwing	red-winged blackbird*
rufous hummingbird	black-billed magpie*	northern shrike	tricolored blackbird*
belted Kingfisher	American crow	European starling*	western meadowlark*
downy woodpecker*	common raven	yellow warbler*	yellow-headed blackbird*
hairy woodpecker*	mountain chickadee	yellow-rumped warbler	Brewer's blackbird*

northern flicker*	house wren*	common yellowthroat*	brown-headed cowbird*
western wood pewee	marsh wren*	Wilson's warbler	Bullock's oriole*
willow flycatcher*	western bluebird	black-headed grosbeak	house finch*
Say's phoebe	mountain bluebird	green-tailed towhee	lesser goldfinch
black phoebe	Townsend's solitaire	chipping sparrow	American goldfinch
western kingbird*		savannah sparrow*	house sparrow*

*species observed nesting on the Refuge; no production data was determined

Noted sightings this year included an albino barn swallow, XXX and XXX.

A mist netting project at Modoc NWR initially began in 1982 as a ten year study to monitor the breeding population of yellow warblers and willow flycatchers. After 1992, Refuge staff continued the mist netting project and began formally submitting the data to the Monitoring Avian Productivity and Survival project (MAPS) on the various neotropical migrants captured. MAPS data is collected at various locations all over the United States by the Institute for Bird Populations in Point Reyes, California. The Refuge's MAPS station continued to be conducted in 2000 at the riparian habitat on the Refuge's Sub-headquarters unit. Half the effort to collect this important data was on a volunteer basis by staff on weekends or by qualified volunteers. Special assistance was given by Catherine Hibbard from the Sacramento Fish and Wildlife Office to guide the Refuge staff in setting up and consistently following the MAPS station standards. Table X describes the data collected for the Refuge's MAPS station for the past five years.

Table X: Monitoring Avian Population and Survival (MAPS) Station Data from 1996 to 2000

Year	Total Days of Operation	Total Net Hours	Birds per 100 Net Hours	Total Birds Captured	Total Number of Species	Largest Daily Catch & Date
1996	20	878	59	514	39	no data
1997	20	733	82	603	36	no data
1998	9	no data	no data	265	no data	no data
1999	9	no data	no data	305	no data	no data
2000	8	448		245	22	53

Noted species captured during the mist netting project included: breeding??juvenile willow flycatchers, a

variant yellow house finch, black phoebes and XXX.

GAME MAMMALS

With the beginning of the year 2000 bringing a mild winter, the mule deer population continued to thrive finding plenty of forage areas and cover in the various habitats found on the Refuge. With the onset of spring, at least XX fawns were observed on the Refuge, although an official deer survey was not completed. During the dry summer, mule deer were scarce on the Refuge, as they headed to higher elevations for greener pastures. The mule deer returned to the Refuge in October as hunting season began, as well as when temperatures dropped and occasional snow showers began to blanket the ground.

Small herds of pronghorn were observed on the west side of the Refuge, usually by the Highway 395 Overlook from May through November of 2000.

OTHER RESIDENT WILDLIFE

Other mammals observed on the Refuge this year include: black-tailed hare, Nuttall's cottontail, pygmy rabbit, Belding's ground squirrel, Beechey's ground squirrel, beaver, various gophers, various mice, muskrat, porcupine, coyote, raccoon, mink, long-tailed weasel, badger, striped skunk, spotted skunk, river otter and bobcat. Other mammals are known to occur on the Refuge, but were not specifically observed this year, e.g., mountain lion.

FISHERY RESOURCES

The following fish species are known to occur within the various waters of Modoc NWR: Pit-Klamath brook lamprey, brown trout, rainbow trout, Goose Lake redband trout, Sacramento sucker, bluegill, green sunfish, largemouth bass, brown bullhead, channel catfish, hardhead, Pit roach, Sacramento squawfish, speckled dace, Tui chub and Pit sculpin. It is unknown how the low water levels at Dorris Reservoir and dry summer affected the fish population this year. Obviously, recreational fishing was not good for anglers who used the Reservoir. No restoration work for fishery resources was completed on the Refuge this year.

The Refuge staff applied for and received a $355,000 grant from the Cantara Trustee Council to build a fish passage device at the Refuge's main Parker Creek diversion structure. XXX briefly describe project and affected fishery resources - use language in memo sent for advance payment XXX. The design of the fish passage was completed this year by Harza Engineering, Inc. with installation to occur in 2001.

SURPLUS ANIMAL DISPOSAL

Over the past ten years, the Refuge collected a large number of bird and mammal specimens. Those that were no longer needed in law enforcement cases, as well as those not needed by the Refuge were donated to the University of XXX for their museum collection of species. It was a mutually beneficial donation which allowed for the emptying of a freezer full of specimens at the Refuge, as well as adding specimens to the

museum which has far better resources in getting the specimens preserved for the education of future generations.

ANIMAL CONTROL

This year, the Refuge staff continued predator control through techniques such as trapping as a method to control predation of waterfowl and greater sandhill cranes. Predator control involved 4 coyotes, 6 mink and 18 striped skunks. Additionally, muskrat (78) and ground squirrel control was employed to prevent further damage and deterioration of water control structures on the Refuge.

MARKING AND BANDING

Refuge staff did not perform any banding of waterfowl this year. The Wildlife Biologist and the two Seasonal Biotechs did assist the State of California Department of Fish and Game with banding of geese at Dorris Reservoir. XXX describe any details or the point of their banding program if possible XXX. As mentioned previously under the *Marsh and Water Birds* section of this report, greater sandhill crane banding operations were conducted from April through September with only two juvenile cranes captured by foot and banded in 2000.

DISEASE PREVENTION AND CONTROL

There were no observed large scale disease outbreaks on the Refuge in the year 2000. XXX red-tailed hawks were found dead on the Refuge and on adjacent lands from January to March of 2000. The hawks did not show any signs of starvation. Due to the backlog of forensics work at the National Forensics Lab and no concrete evidence of foul play (e.g., poisoning), the hawks were not sent to a lab for analysis.

INJURED OR SICK WILDLIFE

The Refuge continued to receive injured or sick wildlife from the public in addition to those found by staff on the Refuge. During the spring, the "injured" wildlife received from the public was often baby birds such as sparrows and starlings. Refuge staff could not do anything for these birds, but an attempt was always made to educate the individual who brought in the baby bird. One "lost" mallard gosling was brought to the Refuge by the public. The gosling was placed in Wigeon Pond near a brood of similar age and it was unknown if it survived. If possible, some wildlife was minimally treated at the Refuge by the Wildlife Biologist, e.g., rehydration. If possible, the injured or sick wildlife was transported to a rehabilitation facility in Klamath Falls, Oregon. During the year 2000, the following injured or sick wildlife were received at Modoc NWR and sent to a rehabilitation facility: XX red-tailed hawks (various injuries), one golden eagle (shot), one Caspian tern (suspected poisoning) and XXX. One red-tailed hawk and the golden eagle were rehabilitated and released back to the wild. Unfortunately for various reasons and/or complications, the other animals were not able to be saved.

Public Use

GENERAL

Use of Modoc NWR by the public during the year 2000 included a variety of recreational and educational activities such as fishing at Dorris Reservoir, waterfowl hunting, special junior waterfowl and pheasant hunts, wildlife observation, environmental education and a migratory bird festival. A total of 45,445 visitors were recorded to have visited the Refuge this year. That's an 18,320 person increase from 1999, mainly due to an increase in visitors along the Auto Tour Route, in school children for environmental education and in visitors participating in the migratory bird festival.

The Refuge issued 12 news releases to local and regional newspapers covering topics such as waterfowl hunting, special junior hunts, improvement projects, land acquisition and wildlife updates. The majority of newspapers were cooperative and supportive in helping the Refuge disseminate information on these issues.

OUTDOOR CLASSROOMS - STUDENTS

School groups from Modoc County continued to utilize the Refuge for various environmental education programs. A total of 235 students participated in an outdoor classroom setting to teach about wildlife ecology and wildlife management. The majority of students were taken on an interpretive tour of the Refuge where Refuge staff taught the students about wildlife and the Refuge, and entertained questions from the students. In addition to the tour, many teachers and their students utilized the educational classroom (a.k.a. cook's quarters) that is attached to the main residential quarters at the Refuge. This area provided an indoor classroom setting on the Refuge, allowing for environmental education to be presented in different formats, often times supplementing or in conjunction with an interpretive tour.

A special summer art class, sponsored by TEACH, Inc. of Alturas, was held on the Refuge for children and adults. The participants painted and sketched wildlife and landscaping scenes as inspired by various Refuge settings. The children participants visited the Refuge for three days of art, while the adults visited the Refuge for two evenings of art. All art work was displayed at the Art Center in Alturas. The Refuge hopes to support future endeavors such as this in order to draw visitors from a variety of backgrounds to the Refuge.

OUTDOOR CLASSROOMS - TEACHERS

XXX describe any teacher workshops or other training and experience sessions in which refuge staff participated in or hosted XXX

INTERPRETIVE FOOT TRAILS

The Wigeon Pond walking trail continued to be enjoyed by approximately 2,400 visitors in the year 2000. This trail provides an alternative to the Auto Tour Route for those visitors who wish to get a more personal

look at wildlife on the Refuge. Weed control to maintain the trial was employed this year. Additionally, the Refuge purchased wildlife interpretive signs this year which will be installed along the walking trail and Auto Tour Route in 2001. The Refuge submitted a proposal in 2000 under the Centennial Legacy Plan for funding a completely accessible walking trail that extends to a full loop around Wigeon Pond.

INTERPRETIVE TOUR ROUTES

The three mile Auto Tour Route, mainly surrounding Teal Pond, continued to be a main source of recreational enjoyment for visitors at Modoc NWR. Highway 395 parallels the west side of the Refuge and County Road 115 bisects the Refuge. Both of these roads provided an "unofficial" tour route for visitors to enjoy wildlife viewing on or near the Refuge. Visitors to the Auto Tour Route and along Highway 395 numbered approximately 18,800 in the year 2000.

This year, the direction of the Auto Tour Route was changed in order to allow for the best wildlife viewing to occur at the end of the tour, along Teal Pond. The majority of visitors welcomed and adjusted to this change, but many complaints were received about the driver of the vehicle not being on the pond side during the majority of the tour with this direction change. Several maintenance or improvements projects were completed this year on the Auto Tour Route. Weed control to maintain the road and levees was administered along the Route. Thanks to funds secured under the Federal Highway Administration's TEA-21 program, a private contractor rehabilitated the road and levees of the Auto Tour Route in November. As part of this work, two vehicle pullouts along the Route, in addition to the Wigeon Pond parking lot, were created in order to allow visitors to stop and view wildlife, as well as to allow cars to pass each other if necessary on this one way route. Projects for next year include the installation of wildlife interpretive signs along the Auto Tour Route and walking trail that were purchased by the Refuge in 2000. Again, thanks to funds secured under the TEA-21 program, an accessible, public vault toilet was purchased in 2000. It will be installed in 2001 near the kiosk and parking lot at the entrance of the Auto Tour Route.

INTERPRETIVE EXHIBITS / DEMONSTRATIONS

Along with the aforementioned directional change of the Auto Tour Route, the Refuge's main interpretive kiosk was moved from near the headquarters (the old entrance) to the new entrance of the Route. This kiosk continues to be a source of environmental education for visitors to the Refuge with emphasis on refuge management activities and goals, as well as management for greater sandhill cranes. The Highway 395 Overlook was completed last year, but interpretive panels from the Refuge were not installed until 2000. These interpretive panels were created from drawings by artists Shari Erickson and Sandy Klein. The art and interpretive information depicts the Warner Mountains and Pit River watershed, the XXX, the XXX and the ecology of the pronghorn. These interpretive panels joined those already in place at the Overlook which discuss recreational opportunities in Modoc County. Approximately 14,150 visitors were recorded to have used these two interpretive facilities in the year 2000.

The Refuge hosted the First Annual Modoc Migratory Bird Festival on May 13, 2000 in coordination with the Modoc County Natural Resources Education Committee. A Special Use Permit was issued to the Modoc County Natural Resources Education Committee to hold the Festival on the Refuge. XXX insert

write-up of Festival (good description already exists on S: drive) XXX.

Refuge staff created and manned a booth / exhibit at the Festival which described with photos and interpretive information several migratory birds that utilize the Refuge. Bird specimens placed around the exhibit, posters and temporary bat and eagle tatoos were all big hits with the children attending the Festival. The exhibit also provided a wealth of information regarding the Refuge, other refuges nearby, the refuge system and the Service in a variety of brochure, handout and poster formats.

OTHER INTERPRETIVE PROGRAMS

XXX describe Refuge staff participation in the Natural Resource Academy XXX

In the fall of 2000, the Wildlife Biologist also presented an interpretive program to all the second graders at the Modoc Elementary School for their Career Day. Through picture slides, specimens and discussion, she taught the students about working as a wildlife biologist on a National Wildlife Refuge and how it relates to the necessary reading, math and other skills the students must learn in school.

HUNTING

During 2000, waterfowl numbers in North America remained nearly equal to those in 1999 despite flooding in the northern breeding grounds of many species. This resulted in the waterfowl hunting season of 2000-2001 to be the same in terms of duration, bag limits and possession limits as in the previous 1999-2000 season. Table X describes the dates and limits for these two seasons:

Table X: Regulations for the 1999-2000 and 2000-2001 Waterfowl Hunting Season

Waterfowl	Season	Limits	Details or Notes
Ducks	10/9/1999 to 1/16/2000	7 daily, 14 in possession	Daily bag included the following: up to 7 mallards (but no more than 2 females), 1 pintail, 1 canvasback, 2 redheads, & 4 scaup
	10/7/2000 to 1/14/2001		
Geese	10/9/1999 to 1/16/2000 - all geese except white-fronted & cackling 10/9/1999 to 11/20/2000 - white-fronted & cackling geese only	Total (white & dark): 3 daily, 6 in possession	Species Limits: Dark Geese (Canada, white-fronted & cackling): 2 daily - of which only 1 may be a cackling goose White Geese (Snow & Ross): 3 daily, 6 in possession
	10/7/2000 to 1/14/2001 - all geese except white-fronted & cackling geese		

	10/7/2000 to 11/18/2001 - white-fronted & cackling geese only		
Coot & Moorhen	10/9/1999 to 1/16/2000	25 daily, 50 in possession	- -
	10/7/2000 to 1/14/2001		
Snipe	10/9/1999 to 1/16/2000	8 daily, 16 in possession	- -
	10/7/2000 to 1/14/2001		

With the warm winter during the 1999-2000 season, waterfowl harvest numbers during January of 2000 were XXX low, average or high XXX. During the opening weekend of the 2000-2001 season and the two weeks following it, the Refuge provided good duck hunting as a large number of ducks migrated south onto the Refuge somewhat early in the season during mid to late September. But by the end of October, the number of ducks on the Refuge slowly dropped with no additional large groups of ducks moved onto the Refuge. As previously mentioned, it was theorized that the drought conditions or other water problems within and surrounding the Klamath and Great Basins affected waterfowl utilization, especially ducks, of the Refuge as most waterfowl bypassed the area and headed directly to the Sacramento / Central Valley. Additionally, during November and December of 2000-2001 season, the Canada goose population and hunting harvest remained low on the Refuge with few new flocks of geese moving in from the north.

Although water levels were very low at Dorris Reservoir during the summer and fall of 2000, the maintenance staff did an excellent job of meticulously monitoring and maintaining the water levels in the wetlands, ponds and wet meadows of the Refuge. Most areas remained stable without significant loss of water, although many were below normal levels for several months. No significant habitat areas in the system were dry. Due to the lack of water in the Reservoir, though, the Matney Fields in the hunt unit were not flooded for the 2000-2001 hunting season, as is typically done before the end of the irrigation season. Enough water flowed through the South Fork of the Pit River to maintain the wetlands dependent on this water source, as well as allow the majority of the water features in the hunt area to be near full capacity or flooded in time for the opening of the 2000-2001 hunting season. A few complaints were heard from hunters in regard to the water levels, but given the initial lack of water and poor hunt for the first month at Klamath Basin NWRC, as well as the cancellation of the entire hunting season at Stillwater NWR due to no water, most hunters were simply pleased to have some decent habitat in which to hunt.

The following table summarizes the waterfowl harvest at Modoc NWR during the last two hunting seasons:

Table X: Summary of Harvest Statistics for the 1999-2000 and 2000-2001 Waterfowl Hunting Season at Modoc NWR

Year	# of Hunters	# of Waterfowl Harvested per Hunter	# of Ducks Harvested per Hunter	# of Geese Harvested per Hunter

1999	1,645	1.71	1.40	0.17
2000				

The State of California authorized two days of Junior hunting, September 29 and 30, 2000 across the state before the opening of the regular waterfowl hunting season. Previous years authorized only one day across the state. Numerous National Wildlife Refuges, state refuges and private hunting areas permitted Junior hunters to hunt during the two days. The Refuge had not previously held a Junior waterfowl hunt and decided to allow one day of hunting for Juniors on Saturday, September 29. On the evening of the 28th, Refuge staff, Brad Storm and Anne Marie LaRosa, conducted an orientation for approximately 15 Junior hunters. The hunters were oriented to the hunt area, Refuge hunting regulations, hunting ethics and basic waterfowl identification. Forty-one Junior hunters participated in the Junior Hunt on Saturday at the Refuge, averaging X.XX geese per hunter and X.XX ducks per hunter (includes X.XX mallards per hunter). Based on feedback from Junior hunters and their chaperones, the hunt was a great success. Complaints were heard from hunters during the Opening Weekend in regard to the Junior hunt. Most believed that the previous week's Junior hunt "scared off" and "put the waterfowl on alert", diminishing their opportunity. Many felt that Opening Weekend was a very special and competitive time for hunting for which they spent big bucks and time to be part of. Despite these complaints, the Refuge intends to continue having a Junior waterfowl hunt in the future, as the staff believes that the benefits far outweigh any detriment. Additionally, the Opening Weekend harvest statistics during the 2000-2001 season were above average as compared to the previous year.

Two days of pheasant hunting for Juniors was also held on the Refuge on Sunday, November 19th and 26th. XX Juniors participated on the 19th with XX pheasants taken and XX Juniors participated on the 26th with XX pheasants taken. The community, parents and other hunters showed nothing but support for these two special hunt days and the Refuge hopes to continue holding pheasant hunts for Juniors in the future.

FISHING

Dorris Reservoir is the only body of water where fishing is allowed on the Refuge. The Reservoir is a popular area for fishing, especially for local anglers. Largemouth bass, channel catfish, sunfish, and rainbow trout can be found in the Reservoir. Fishing is permitted during daylight hours except during waterfowl hunting season (usually October through January). All California State fishing regulations apply to fishing at the Reservoir.

By XXX the water control structures at Dorris Reservoir were opened completely, with little or no flow moving through the system. Fortunately, the surface of the Reservoir never dropped to below the bottom of the outlet pipe on Dorris Dam. But the low water levels during spring and summer had a significant impact on recreational fishing at the Reservoir. By spring, complaints were heard from many anglers regarding the low water levels with complaints registered well into the summer. Rumors circulated around Alturas regarding the low levels, with one being that the Refuge was draining the Reservoir to kill all the fish. Refuge staff diffused these rumors wherever possible. In coordination with other local agencies, Refuge staff presented and discussed information with the Modoc County Fish, Game and Recreation

Commission demonstrating that low water levels were the result of a warm winter, lack of runoff from snow melt, lack of spring rains, and a hot spring and summer. Some members of the Commission and public felt that the Refuge was not managing the water properly in Dorris Reservoir, especially not managing the water for recreational fishing, and requested information regarding the Refuge's management plan and water rights for the Reservoir. Refuge staff supplied this information to the Commission. Due to turnover within the Commission, nothing further was discussed or requested during the year 2000. The Refuge expects this issue to resurface next year, especially if the water levels are not replenished by winter and spring storms in 2001 and are not maintained at a reasonable level once the recreational fishing season begins.

XXX There were approximately 11,700 anglers recorded to have used Dorris Reservoir during 2000. XXX This was up by XXX from the 1999 season.

WILDLIFE OBSERVATION

It was estimated that approximately 30,400 visitors utilized Modoc NWR for wildlife observation in the year 2000. Wildlife observation at the Refuge focuses on waterfowl and other marsh birds as observed from the Auto Tour Route around Teal Pond. Visitors from the local area also enjoy the mule deer and raptors that frequent the Refuge. A large number of out-of-town visitors continue to find this small, isolated Refuge to not only observe water birds and (especially nesting greater sandhill cranes), but to also enjoy raptors and songbirds. This latter phenomenon is consistent with what is occurring all across the country, as birders seek new and interesting locations to see a variety of birds. The Refuge still does not receive the amount of visitors that other National Wildlife Refuges see each year, but Refuge staff continues to hear that the Refuge is a nice stop as visitors make their way to or from Reno, Redding, Bend or other National Wildlife Refuges in the area. As one visitor commented, "the Refuge is a great diversion on the way to Malhuer National Wildlife Refuge." Modoc NWR staff welcomes any reason for the public to stop and enjoy the fruits of our work.

OTHER WILDLIFE ORIENTED RECREATION

Wildlife photography continued to be a popular means of recreation at Modoc NWR in the year 2000. Due to the scenic beauty of the area with the Warner Mountains as a backdrop, as well as the variety of wildlife that frequents the Refuge's wetland habitats, many photographers stopped at the Refuge capture waterfowl, greater sandhill cranes and mule deer on film. The exact number of photographers who used the Refuge in 2000 was not known.

OTHER NON-WILDLIFE ORIENTED RECREATION

Waterskiing was still a permitted use at Dorris Reservoir in the year 2000, although Refuge staff nor landowners around Dorris Reservoir did not notice any skiers utilizing the Reservoir during the open season of June 1 through September 30, 2000. This inactivity was probably due to the low water levels in the Reservoir throughout the open season and opportunities for better waterskiing at other areas in the region.

XXX briefly discuss future of waterskiing on Dorris based on national policy to be issued next year?? XXX

LAW ENFORCEMENT

Due to staff turnover in 1999, the Refuge was without an employee with law enforcement credentials in the year 2000. The Refuge could not afford to send a current employee to the Federal Law Enforcement Training Center in Glencoe, Georgia for complete training. The Refuge Manager forged a cooperative agreement with the Bureau of Land Management based in Alturas to receive part-time assistance from a BLM Ranger, Carman Prisco. The only cost to the Refuge was in paying for Officer Prisco to attend a few training sessions that covered the Service's specific law enforcement regulations. Additionally, Dave Menke from the Klamath Basin NWRC assisted Officer Prisco with Service regulations, specifically in regard to waterfowl hunting on the Refuge. Officer Prisco, when time permitted, provided law enforcement services for the Refuge during the waterfowl hunting 2000-2001 season. It is hoped that his services will also be utilized next year when Dorris Reservoir is open for public use.

In addition to Officer Prisco, law enforcement assistance during Opening Weekend of the 2000-2001 waterfowl hunting season was provided by Officer Barry Tarbet from San Francisco Bay NWRC, as well as Special Agents Terry Jorgenson and Terry XXX from the Sacramento Law Enforcement Office. Their presence was much appreciated by the Refuge staff during the busy opening weekend. Only one violation was issued by Agent Jorgenson to a hunter who went over their limit of two female mallards. The hunter did not contest the violation and promptly paid the fine.

Equipment and Facilities

NEW CONSTRUCTION

There was no new construction on the Refuge by staff or outside contractors in the year 2000. As mentioned previously in the *Volunteer Programs* and *Partners for Wildlife Program* sections of this report, crews from the California Department of Forestry's Devil's Garden Conservation Camp provided invaluable "volunteer" labor to construct a new, legal boundary fence around the Davis easement in Eagleville, CA.

REHABILITATION

Annual rehabilitation by Refuge staff occurred in the year 2000, mostly involving the repair and maintenance of dikes, levees and water control structures that had received routine damage from the weather and wildlife (specifically muskrats, beavers and ground squirrels). Specific rehabilitation or improvement projects that were performed by Refuge staff in 2000 include the following:

- replaced the irrigation pipe in the North Grain field;
- repaired the dike between Matney fields #5 and #6;
- improved the irrigation system (included moving the irrigation ditch and replacing all water control

structures) along the east side of the Grandma Field to allow for better management of water flows;
- cleared debris and weeds in Dorris Canal near the Deer Pond Unit between Pine Creek field to South Pine Creek field;
- moved the information kiosk to the new entrance of Auto Tour Route;
- improved the administrative office, including removal of a closet in the reception area and replacing it with an open area for the copying machine and bookshelves; painting the reception area; removal of the wall between the old copier / fax room and the Refuge Manager's office, creating one large room for the Manager to have a small conference table and chairs for meetings; the addition of an accessible water fountain for the public and Refuge staff; and the replacement of the front office door;
- landscaped grounds around the office with sod, trees, bushes and mulch added to a few existing trees (the previous landscaping was removed to complete waterproofing of the office basement last year);
- completed the office in the maintenance shop which included the addition of an office with a computer, desk and filing cabinets, as well as an eating area over the office;
- overhauled the interior and placed new siding on the banding shed, as well as moved the door from the north side to the south side of the shed (for easier release of captured birds back to the riparian area) and the added several windows for better lighting;
- installation of the interpretive panels at the Highway 395 Overlook; and,
- outfitted the concrete wash pad adjacent to the maintenance shop with a concrete catch basin/drain and curbs to alleviate accidental spills or contamination when working with chemicals or when cleaning equipment in order to comply with last year's Environmental Audit;

This was the first year that refuges across the nation received base funding for routine and annual maintenance for buildings, structures and equipment through the 1262 subactivity. Modoc NWR received $10,500 for the year 2000 which greatly assisted in funding many of the above mentioned projects. The funds were also used to provide much needed repair of equipment as discussed in the *Equipment Utilization and Replacement* section below. Additionally, the funds were used to replace minor equipment that the maintenance staff uses on a daily basis (e.g., tools, shop supplies, etc.)

MAJOR MAINTENANCE

In addition to the base funding of $10,500 for routine maintenance, Modoc NWR received funding for two MMS projects in the year 2000: improvements to the Refuge's main diversion structure on Parker Creek and replacement of the buoys on Dorris Reservoir. The Parker Creek project did not get underway until the late summer / early fall of 2000 with 35% of the design completed by November. Refuge staff worked with Regional Office engineers and the contracted engineers from Harza Engineering, Inc. with the design of a new diversion structure and fish passage. The MMS project only covers the design of the structures, while the construction of the structures will be covered by funds from a grant received by the Refuge from the Cantara Trustees (see the *Fishery Resources* section of this report for more details on the grant). It is expected that a final approved design and construction will be completed in 2001. The MMS funds received to replace the buoys on Dorris Reservoir were redirected with permission from a Refuge Supervisor with the CA/NV Operations Office to replace the roof of the wood shop at Refuge headquarters. An additional $10,000 in MMS funds were secured in August from Kern NWR due to one of their projects coming in under budget. Modoc NWR used the funds to re-roof the office building at Refuge headquarters.

Several MMS projects which began and were funding in 1999, were completed in calendar year 2000, including the maintenance and rehabilitation of the Sharkey Dam and South Dam bridges to comply with safety standards. Final work on the Sharkey Dam bridge was completed by Steve Barrows, a private contractor and final work (replaced wood surface) on the South Dam bridge was completed by Refuge staff.

As mentioned previously in the *Administration* section of this report, the Refuge received $100,000 in Federal Highway Administration TEA-21 funds in fiscal year 2000, to complete improvements to the Auto Tour Route, the Refuge's main public use area. Placement of base road gravel, rip rap along levees/dikes and minor fill on the road was completed in the year 2000. Bids and final costs for the project were well below the initial estimation of $100,000. The remaining funds were used to purchase the following or make the following improvements to be installed or operational by the Spring of 2001: an accessible, public vault toilet to be placed at the beginning of the Auto Tour Route near the information kiosk; an electronic entrance gate to regulate after hours visitor access to the headquarters and public use area of the Refuge; and an accessible, asphalt parking lot and other improvements to the existing parking area at the Wigeon Pond Overlook.

Modoc County contracted with and paid for Fitch Sand & Gravel to resurface a large portion of County Road 56, which is the access road to Dorris Reservoir for Refuge visitors. It was a welcomed improvement by local residents and Refuge staff.

EQUIPMENT UTILIZATION AND REPLACEMENT

The Refuge received two additional vehicles during calendar year 2000, including a new 2000 Chevrolet pick-up truck to replace Greg Albertson's deteriorated S-10 pickup and a 198X fire truck from the Mt. Hood National Forest. The S-10 pickup was disposed of in a GSA sale. The fire truck was outfitted with standard Service fire fighting equipment by the Klamath Basin NWRC fire crew. Routine maintenance was performed by Refuge staff on all vehicles during the year 2000 such as oil and filter changes. Minor repairs to vehicles such as tire replacement and recall notices were performed by private companies.

Vehicle usage during the year 2000 was as follows:

- XXX report fuel consumption or mileage if necessary XXX

The following major equipment repairs were made during the year 2000:

- John Deere 2440 tractor was XXX by XXX;
- John Deere 5410 tractor was XXX by XXX;
- Case International 7110 tractor was XXX by XXX;
- XXX excavator received a new hydraulic cooler with replacement by Refuge staff;

COMMUNICATIONS SYSTEMS

The Refuge contracted with a local serviceman, who is a retired Forest Service radio technician, to perform a check on the radio system. Some problems were identified with the system and Mr. XXX solved them

with minor adjustments to the system within hours. National funding will be provided to replace the radio system at the Refuge in the year 2002, although the current radio system receives limited use by Refuge staff.

The majority of Refuge staff (3 of 5) utilized cellular phones on a regular basis as an alternative to the radio system. Approximately $990 was spent in the year 2000 on cellular phone service. The main advantages to this service over the radio system are: a larger range of service in which the phones will work versus a limited area for the radio system; more of a private conversation with a cellular phone versus the radio system; and the convenience of having staff almost always answering their phones versus hoping they're near a radio to hear a call.

The Lucent Technologies phone system presented Refuge staff with various problems this year. A maintenance contract for $27.50 a month was never purchased as major problems were not foreseen to occur with this system that was installed at the end of 1998. After Refuge staff could not get several phone extensions to work that simply stopped working, a repair technician was called in with a minimum charge of $380 for labor and additional charges for equipment. The problem was solved with the failure and replacement of the switching boar, a failure which could not be explained or had not been seen before by the repair technician. After this $1,400 repair job, the Refuge purchased a maintenance contract which will cover labor charges and minor equipment replacement in the future. The phone system, though, continues to be a very unfriendly system for the Refuge staff to maintain and operate.

COMPUTER SYSTEMS

The start of the year 2000 was a major event for computer systems and technicians around the world with the possibility of the Y2K problem affecting millions of computer systems and software. Luckily, the Service began its Y2K compliance program early, many with solving problems before the start of the new fiscal year in September 1999. No major problems were encountered by the Refuge when computers switched from the year 1999 to the year 2000.

During the year 2000, the majority of Region 1 was converted from Lotus CC:mail to Lotus Notes for e-mail software. Due to the small number of users at Modoc NWR, the software conversion took only one day for Regional Office IRM staff and Reno IRM staff to complete. Unfortunately, though, it took about two months and many hours of Refuge staff time on the phone with IRM techs to work out all the problems associated with the Lotus conversion and its compatibility with the Refuge server. Other new or updated software or updates received by the Refuge in the year 2000 include: Microsoft Explorer 5.0 (internet software); Filemaker Pro 5.0 (RMIS software); Microsoft Office Suite 2000 (mainly purchased for PowerPoint presentation and Excel spreadsheet software); Fire Weather Plus (weather station software); and Paradox 5.0 (budget tracking software).

New computer equipment purchased in the year 2000 included: a Robotics modem for the server; a monitor for the Refuge Manager's computer; a CPU and monitor for the Administrative Assistant; a color printer; a scanner; and XXX. The new computer system for the Administrative Assistant was needed to replace a substandard system being used by a position that utilizes a multitude of software programs. Additionally, the hard drive of the computer in the shop crashed and could not be recovered (after Lotus Notes was

installed and used for several months). Since the shop computer is only used to access e-mail, access the internet and perform basic word processing, the Administrative Assistant's computer was placed in the shop. The Refuge still has two staff computers and two laptops that are below Service standards. When funding permits, these computers will be replaced, currently occurring at a rate of one per year. In addition, the Refuge's server is below standard, but national or other IRM funds will have to be obtained to replace this expensive piece of computer equipment.

Other Items

COOPERATIVE PROGRAMS

The Refuge is involved in a variety of cooperative programs, many of which have already been previously discussed in this report, as well as others which are discussed below.

California Department of Fish and Game - Goose Banding Operation

See the description under the *Marking and Banding* section in the *Wildlife* portion of this report.

Modoc County Natural Resources Education Committee - Modoc Migratory Bird Festival

See the description under the *Interpretive Exhibits / Demonstrations* section in the *Public Use* portion of this report.

Modoc County Weed Management Group

The Refuge continued to attend meetings and participate in the Modoc County Weed Management Group. The Group received a National Fish and Wildlife Foundation grant under the "Pulling Together Initiative" to organize the Group for the first year and plan community workshops. The Group held a two day workshop in XXX mainly targeted at private land owners. The first day consisted of a morning of discussions / lectures held at the Forest Service office in Alturas in regard to management of specific weeds, followed by an afternoon picnic lunch and "Weed Dig" at the Refuge. The "Weed Dig" involved Refuge staff discussing with participants the Refuge's major problem weeds and management techniques, and digging weeds (specifically Canada thistle) with shovels along the Wigeon Pond walking trail to pull the group together in tackling weed control. On the second day, the participants toured various private ranches and public lands in Modoc County to see and discuss various weed management problems and control techniques. Similar workshops are planned for 2001 if funding continues. Additionally, Refuge staff worked with the Modoc County Weed Management Group to develop a strategic plan for the Group and its weed management efforts in the County. The strategic plan not only covers Service lands at Modoc NWR, but also Service lands at Klamath Basin NWRC in Tulelake, California which is also in Modoc County.

Cooperating Organization ??? - Greater Sandhill Crane Surveys of the Central Valley Population

describe off-refuge crane surveys

Cooperating Organization ??? - Breeding Bird Surveys

describe off-refuge breeding bird surveys

XXX describe any other cooperative programs XXX

Credit

Many Refuge Managers believe that given today's instant communication and the lack of dedicated, undisturbed time to capture information, annual narratives are becoming obsolete. Given the amount of turnover at some National Wildlife Refuges, including Modoc NWR, the staff at Modoc NWR found it extremely helpful to be able to go back to gleam information from annual narratives. Thus Modoc NWR staff found it necessary to continue writing annual narratives for future Modoc NWR employees to peruse.

Some general information with regard to the Refuge was drawn from Refuge's last annual narrative which was written in 1992 by E. Clark Bloom, David Johnson, Ronnie Ryno and Kevin DesRoberts. To compile specific information for the calendar year 2000, various Refuge documents and reports were used, in addition to the contributions of the entire staff: Greg Albertson, Carl Cox, Anne Marie LaRosa, Amy LaVoie and Patty Walcott. The majority if writing and editing of the narrative was completed by Anne Marie LaRosa, Amy LaVoie and Patty Walcott.